CLAIMS

What is claimed is:

1. A production system for producing a VIPDL output stream from a dynamic document and a recipients list comprising:

5   a data iterator for iterating through said recipients list one record at a time and computing values for each dynamic object in said dynamic document for said record;

       a document instantiator for creating an instance document for said record;

10   an output generator operating in tandem with said document instantiator for generating code specifying the rendering of said document instance; and

       a merge component for generating said VIPDL output stream from output of said output generator.

15 2. A production system according to claim 1, wherein said VIPDL output stream is defined in an object-oriented (rendering) specification language.

3. A production system according to claim 2, wherein said object-oriented specification language is VPS.

20 4. A production system according to claim 2, wherein said object-oriented specification language is PPML.

5. A production system according to claim 1, wherein said VIPDL output stream is defined in HTML.

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6. A production system according to claim 1, and also comprising a content objects buffer for allowing said data iterator and said document instantiator to operate in a producer consumer manner.

7. A production system according to claim 1, wherein said merge component comprises:

a definitions dictionary comprising reusable object names and their definitions;

a booklets section comprising layout information for pages of dynamic document instances; and

a merge processor for generating said VIPDL output stream from contents of said definitions dictionary and said booklets section.

8. A production system for producing a VIPDL output stream from a dynamic document and a recipients list comprising:

a parts generator for breaking said recipients list into a plurality of parts;

a plurality of pipelines for parallel processing of said recipients list;

a plurality of definitions dictionaries for receiving reusable object definitions from said plurality of pipelines;

a plurality of booklets sections for receiving layout information from said plurality of pipelines; and

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a merge processor for generating said VIPDL output stream from contents of said plurality of definitions dictionary and said plurality of booklets section.

9. A method for producing a VIPDL output stream from a dynamic document and a recipients list comprising the steps of:

selecting a next record from said recipients list;

generating a document instance from said dynamic document for said selected record from said recipients list;

generating entries in a definition dictionary corresponding to reusable objects in said dynamic document;

generating a rendering specifications section for said generated document instance;

concatenating said rendering specifications section into said VIPDL output stream;

repeating said step of selecting, said first step of generating, said second step of generating, said third step of generating, and said step of concatenating until said recipients list has been exhausted; and

generating an elements definition section from the information in said definitions dictionary and pre-pending said elements definition section at the head of said VIPDL output stream.

10. The method according to claim 9, wherein said step of selecting, said first step of generating, said second step of generating, said third

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step of generating, said step of concatenating, said step of repeating, and said fourth step of generating are performed by pipeline processing.

11. A method according to claim 9, wherein said first step of generating also comprises the steps of:

collapsing all the queries for the set of said dynamic content objects into one query; and

computing said one query.

12. A method according to claim 9, wherein said first step of generating also comprises the steps of:

caching views generated by queries; and

reusing said cached views.

13. A method according to claim 9, wherein said VIPDL output stream is defined in an object-oriented specification language.

14. A method according to claim 13, wherein said object-oriented specification language is VPS.

15. A method according to claim 13, wherein said object-oriented specification language is PPML.

16. A method according to claim 9, wherein said VIPDL output stream is defined in HTML.

17. A method for producing a VIPDL output stream from a dynamic document and a recipients list comprising the steps of:

dividing said recipients list into a plurality of distinct parts;

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performing parallel processing independently for each of said parts; and

merging a plurality of definition dictionaries and a plurality of rendering specifications sections created in said step of performing into one VIPDL output stream corresponding to said entire recipients list

18. The method according to claim 17, wherein said step of selecting, said first step of generating, said second step of generating, said third step of generating, said step of concatenating, said step of repeating, and said fourth step of generating are performed by pipeline processing.

19. A method according to claim 17, wherein said step of performing further comprises the step of:

using a gossiping mechanism to reduce redundancy in said plurality of definition dictionaries.

20. A method according to claim 17, wherein said step of performing further comprises the steps of:

selecting a next record from said recipients list;

generating a document instance from said dynamic document for said selected record from said recipients list;

generating entries in a definition dictionary corresponding to dynamic content objects in said dynamic document;

generating a rendering specifications section for said generated document instance;

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concatenating said rendering specifications section into said VIPDL output stream;

repeating said step of selecting, said first step of generating, said second step of generating, said third step of

5   generating, and said step of concatenating until said recipients list has been exhausted; and

generating an elements definition section from the information in said definitions dictionary and pre-pending said elements definition section at the head of said VIPDL output

10   stream.

21. A method according to claim 20, wherein said first step of generating also comprises the steps of:

collapsing all the queries for the set of said dynamic content objects into one query; and

15   computing said one query minimizing joins.

22. A method according to claim 20, wherein said first step of generating also comprises the steps of:

collapsing all the queries for the set of said dynamic content objects into one query; and

20   computing said one query minimizing re-selections.

23. A method according to claim 20, wherein said first step of generating also comprises the steps of:

caching views generated by queries; and

reusing said cached views.

24. A method according to claim 17, wherein said VIPDL output stream is defined in an object-oriented specification language.

25. A method according to claim 24, wherein said object-oriented specification language is VPS.

26. A method according to claim 24, wherein said object-oriented specification language is PPML.

27. A method according to claim 17, wherein said VIPDL output stream is defined in HTML.

28. A method for query optimization comprising the step of:

    collapsing all the queries for a set of dynamic content objects into one query.

29. A method according to claim 28 and further comprising the step of:

    computing said one query minimizing joins.

30. A method according to claim 28 and further comprising the step of:

    computing said one query minimizing re-selections.

31. A method according to claim 28 and further comprising the steps of:

    caching views generated by queries; and

    reusing said cached views.

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